

California End Use Survey (CEUS) Project

Coordinated by the California Energy Commission

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Project Team:

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KEMA-XENERGY

ADM Associates

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Knowledge to Shape Your Future

Project Background

- Both CEC and Utilities needed data on commercial buildings
- Last comprehensive on-site surveys were conducted in mid 1990s or earlier
- Project funded out of PGC Funds
- Project began in 2001
- Project is ongoing

Project Objectives

- To characterize the way in which the commercial sector uses energy (EUIs, load profiles and saturations)
- To support the end-use forecasting process (baseline values)
- To support the assessment of energy efficiency opportunities in the commercial sector (measure saturations, applicability factors, impacts)
- To provide a tool that can be used by the CEC for tailored analysis of commercial energy usage as well as other purposes

Major Project Elements

- On-site surveys of 2800 commercial premises
- The development of a comprehensive database on these premises
- The development of a building simulation and analysis tool (DrCEUS)
- Preparation of building simulations for all 2800 sites
- The development of profiles of market segments, as defined by building categories, climate zones and planning areas (EUIs, saturations, hourly end-use profiles)

On-Site Surveys

- **Sample Distribution:**

- PG&E: 1,005
- SCE: 1,144
- SDG&E: 351
- SMUD 300
- Total: 2,800

- **Survey Contractors:**

- XENERGY/KEMA
- ADM Associates

- **Survey Information:**

- Site geometry and orientation
- Site HVAC zoning
- Shell features
- Equipment inventories by component and HVAC zone (size, efficiency, units)
- Operating schedules for all equipment
- Recent site changes

Building Simulations

- Cover all 2,800 sites
- Cover up to 13 electric and 6 gas end uses
- Informed by logger data on lighting and HVAC fans
- Calibrated to:
 - 2002 billing information, including demand where available
 - 2002 load research data on individual sites, where available
 - 2002 segment load profiles
- Weather normalized

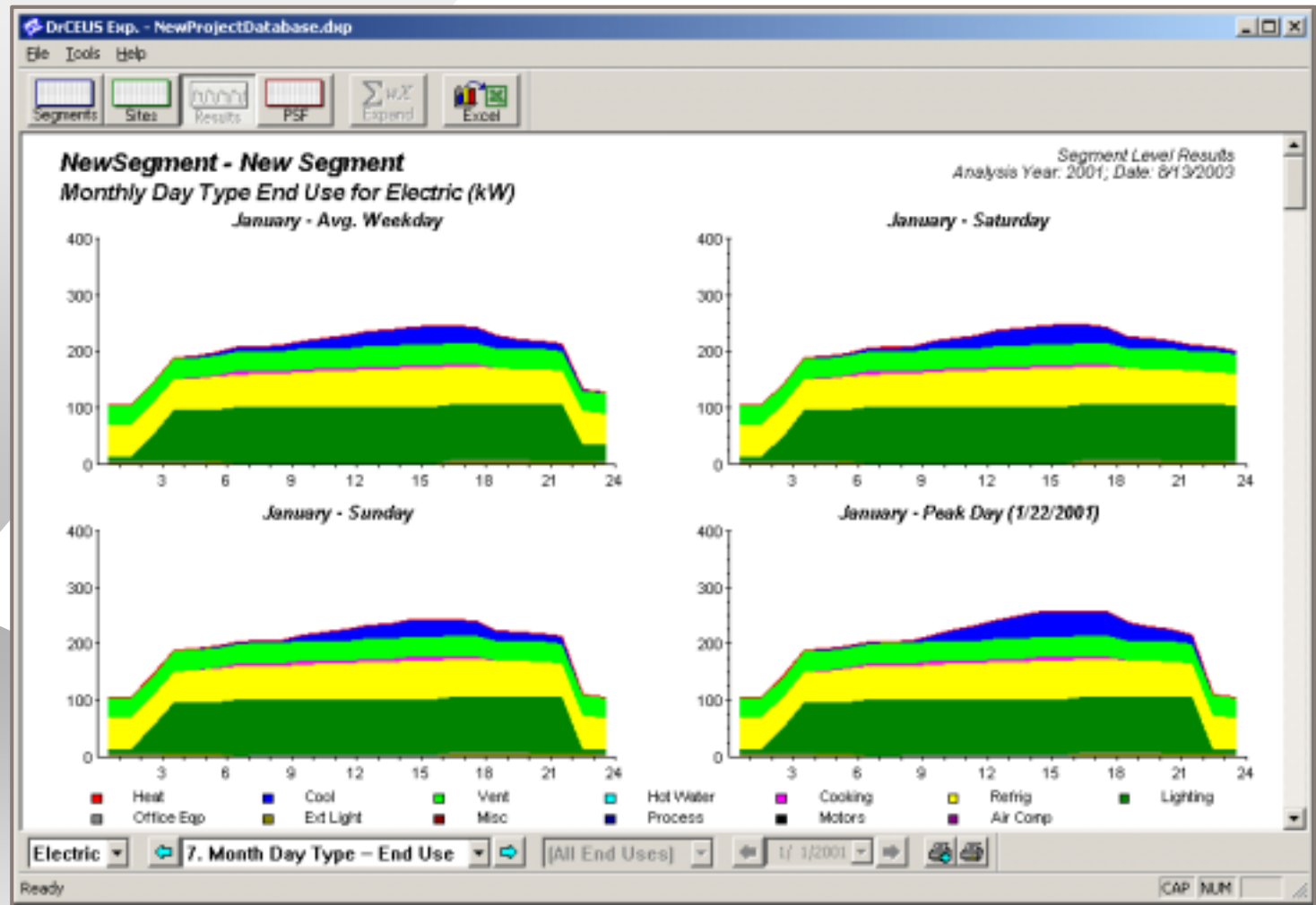
Site-Level Results



Segment Analysis

- Expands site level results to population (by segment) using expansion weights
- Available results:
 - Segment level day-type end-use profiles, EUIs
 - Segment-level saturations
 - Segment comparisons
 - 8760s by end use
 - Pick-a-day graphic
 - Monthly day-type profiles

Segment Analysis End-Use Graphics



Project Status

Element	Current Status	Expected Completion
On-Site Surveys	2,800 done	February 2005
Simulations	2,500 of 2,800 done	May 2005
Simulation Software	Main elements done	June 2005
Segment Analysis	Not yet started	July 2005